

Case Report: Resection of Giant Mediastinal Liposarcoma Using the Partial Sternotomy Incision

Jose Manuel Mier Ordionzola^{1*}, Atl Simon Arias Rivera³, Jessica Esquivel Chahin², Shimon Shlomo Glick Betech², Sabrina Carriles Boro²

1 Founder and Medical Director- Institute of Minimally Invasive Thoracic Surgery, Hospital Angeles Lomas, Mexico City, Mexico. Vialidad de la Barranca 240, Hacienda de las Palmas, Huixquilucan, Estado de México 52763. 5521078324.

2 Department of General Surgery, Hospital Angeles Lomas, Mexico City, Mexico

3 Doctor of medicine and Medical Assistant- Institute of Minimally Invasive Thoracic Surgery, Hospital Angeles Lomas, Mexico City, Mexico

***Corresponding Author:** Jose Manuel Mier Ordionzola, Founder and Medical Director- Institute of Minimally Invasive Thoracic Surgery, Hospital Angeles Lomas, Mexico City, Mexico. Vialidad de la Barranca 240, Hacienda de las Palmas, Huixquilucan, Estado de México 52763. 5521078324.

Received date: November 22, 2022; **Accepted date:** December 13, 2022; **Published date:** January 28, 2023

Citation: Jose Manuel Mier Ordionzola, Atl Simon Arias Rivera, Jessica Esquivel Chahin, Shimon Shlomo Glick Betech and Sabrina Carriles Boro. (2023). Case Report: Resection of Giant Mediastinal Liposarcoma Using the Partial Sternotomy Incision, *J. Clinical Case Reports and Studies* 4(1); DOI: [10.31579/2690-8808/155](https://doi.org/10.31579/2690-8808/155)

Copyright: © 2023 Jose Manuel Mier Ordionzola, This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Primary mediastinal liposarcomas are rare. There are four types of liposarcoma: well differentiated/atypical lipomatous tumor, dedifferentiated, myxoid, pleomorphic. In this study we report a rare case of a mediastinal well-differentiated liposarcoma that was successfully surgically removed. Because of the noninvasive growth pattern of most liposarcomas, patients often present with few symptoms, which was the case in our patient presenting only with dry cough. Normally these tumors are diagnosed by radiologic imaging. Common symptoms include cough, dyspnea, wheezing, chest pain, and weight loss. There are different histologic variants of liposarcoma, the most frequent one is well-differentiated liposarcoma. In our case we couldn't confirm the histology with fine needle aspiration but with the frozen section we confirmed the diagnosis of well-differentiated liposarcoma.

An optimal approach is very important to remove mediastinal liposarcoma because of the diversity of size and location of lesions.

Key words: liposarcoma; giant liposarcoma; mediastinal tumor; thoracic surgery

Introduction

Liposarcoma is one of the most prevalent malignant tumors developed from soft tissue, however, mediastinal liposarcomas as a primary tumor are very infrequent. Its most common location is the lower extremities and retroperitoneum [1]. When the primary liposarcoma is located at the mediastinum, it tends to grow insidiously from an expansive way instead infiltrative. Usually, these tumors leave no symptoms until its already taking pleural spaces or even compressing adjacent structures (such as Vena Cava) and the most common symptomatology is chest discomfort, dyspnea, and cough. Chemotherapy is ineffective for most cases of liposarcoma, that's why the recommended approach is the surgical one, by a median sternotomy or lateral thoracotomy for the resection of the tumor. Is important to consider that large masses usually are complicated to manage by these approaches [2,3]. There is hardly any information and

evidence about mediastinal liposarcomas since they are rare. According to the World Health Organization (WHO), there are four types of liposarcoma:

- Well-differentiated/atypical lipomatous tumor (WDL/ALT): this is the most common (50% of all cases), less aggressive, low risk of metastasis.
- Dedifferentiated: high risk of metastasis, most frequently located in the retroperitoneum.
- Myxoid: this is the most common type in children.
- Pleomorphic: the rarest type (only 5 to 10% of all cases), high risk of metastasis and recurrence [4].

In this study we report a rare case of a mediastinal well-differentiated liposarcoma that was successfully surgically removed.

Case Report

A 45-year-old woman, with no comorbidities presented to the external consultation with a dry cough of one year of evolution. The diagnostic

approach was initiated with a computed chest tomography (CT) which revealed a large well defined mass. The mass extended from the anterior mediastinum in close relationship to the right common carotid artery and the right subclavian artery. The CT reported the mass of 17 x 11 cm in measurements (Figure 1). A CT-guided needle biopsy gave a report of undetermined histology. We preoperatively diagnosed liposarcoma or teratoma based on radiologic evaluation.

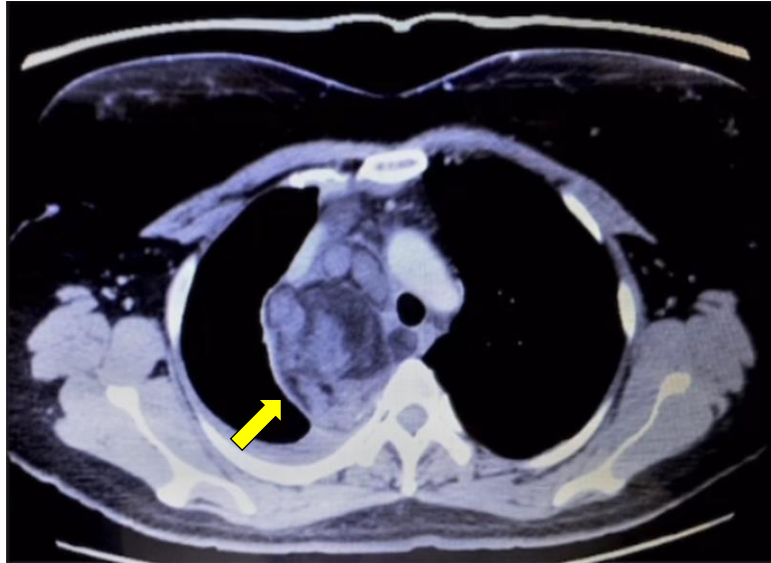


Figure 1: Presence of mass 17 x 11 cm in measurements localized in the mediastinum (arrow in yellow)

The operative management was first approached with a cervicotomy doing a frozen section of the mediastinal mass (Figure 2). The diagnosis was a liposarcoma in the frozen section. We continued the operative approach with a partial sternotomy incision (Figure 3).

Although the mass was wrapped around blood vessels, it did not invade adjacent structures including large blood vessels and could be removed en bloc.



Figure 2: Cervicotomy incision with a frozen section biopsy of the tumor.



Figure 3: Partial sternotomy incision with dissection of vascular structures.

The operation time was 5 h 30 min. Blood loss was 780 ml, including pleural effusion.

The resected specimen was an elastic hard, multilobular, and encapsulated yellow and gray mass. The tumor weighed 800 g with dimensions of 6 × 11 × 17 cm. The final histopathology confirmed well-differentiated liposarcoma. The patient tolerated the procedure well and had a postoperative recovery uneventful. Follow-up at 38 months showed the patient had a recurrence to the right lung which was treated with adjuvant radiotherapy, posteriorly the patient was disease free.

Discussion

Liposarcoma is the most common soft-tissue sarcoma and accounts for approximately 20% of all mesenchymal malignancies [5]. About 90–95% of these tumors occur in the trunk, the extremities or retroperitoneum. Primary intrathoracic liposarcomas are unusual, representing 2.7% of all locations [6]. Some cases have been reported arising from the neck and subsequently spreading into the thoracic inlet, into the anterior or posterior mediastinum, matching the presentation in our patient [6].

Because of the noninvasive growth pattern of most of these tumors, patients often present with few symptoms, which was the case in our patient presenting only with dry cough. Normally these tumors are diagnosed by radiologic imaging. Common symptoms include cough, dyspnea, wheezing, chest pain, and weight loss [7].

There are different histologic variants of liposarcoma, the most frequent one is well-differentiated liposarcoma [1]. In our case we could not confirm the histology with fine needle aspiration but with the frozen section we confirmed the diagnosis of well-differentiated liposarcoma. The recommended therapeutic approach is surgical management. This is because liposarcomas have very low sensitivity to chemotherapy and radiotherapy [8].

For our case the partial sternotomy incision was chosen, this was because the tumor was localized in the right hemithorax with a cervical component. This allowed excellent visualization and complete dissection of the tumor. Partial sternotomy provides excellent exposure of both vascular and nonvascular structures allowing a safe access to the anterior superior mediastinum [9].

Long-term survival has been described to be dependent on encapsulated tumors and complete excision. Local recurrence is primarily related to the incomplete removal at the time of primary surgery [10].

Conclusion

In conclusion, an optimal approach is very important to remove mediastinal liposarcoma because of the diversity of size and location of lesions. The partial sternotomy incision provides a safe approach to the anterior mediastinum with an adequate visualization of the vascular structures. This approach can be used in selective patients and is an alternative for hemiclamsell or full sternotomy providing a less invasive approach.

References

1. Yang Y-S, Bai C-Y, Li Z-C, Li W-J, Li Y. (2022). Giant primary liposarcoma of the anterior mediastinum: A case report: A case report.
2. Huang W, Jiang GN. (2017). Resection of giant mediastinal liposarcoma via 'H shape' incision. *Journal of Surgical Case Reports*.
3. Miura K, Hamanaka K, Matsuoka S, Takeda T, Agatsuma H, Hyogotani A, et al. (2018). Primary mediastinal dedifferentiated liposarcoma: Five case reports and a review. *Thoracic Cancer*. (12):1733-1740.
4. Suster DI, Suster S. (2022). Liposarcomas of the mediastinum. *Mediastinum [Internet]*. 2020 4(0):27.
5. Chen, M., Yang, J., Zhu, L. et al. (2014). Primary intrathoracic liposarcoma: a clinicopathologic study and prognostic analysis of 23 cases. *J Cardiothorac Surg* 9.
6. Shmookler, B M, and F M Enzinger. (1983). "Liposarcoma occurring in children. An analysis of 17 cases and review of the literature." *Cancer* vol. 567-574.
7. Okuno, M., Kawashima, M., Miura, K., Kadota, E., Goto, S., & Kato, M. (2010). Resection of giant mediastinal liposarcoma using the hemiclamsell incision. *General thoracic and cardiovascular surgery*. 58(12). 654-656.
8. Punpale, Ajay et al. (2006). "Giant mediastinal liposarcoma: a case report." *Annals of thoracic and cardiovascular surgery: official journal of the Association of Thoracic and Cardiovascular Surgeons of Asia* vol. 12. 425-427.

9. Paul, Subroto et al. (2009). "Partial upper sternotomy for anterosuperior mediastinal surgery: an institutional experience." *Annals of surgical oncology* vol. 16,4 1039-1042.
10. Rena, Ottavio et al. (2015). "Giant Cervico-mediastinal Well-differentiated Liposarcoma." *Heart, lung & circulation* vol. 112-114.
11. Suster, D. I., & Suster, S. (2020). Liposarcomas of the mediastinum. *Mediastinum* (Hong Kong, China).
12. Wiedemann, Dominik et al. (2011). "Mediastinal liposarcoma." *Journal of cardiac surgery* vol. 26. 162-164.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here:

[Submit Manuscript](#)

DOI: [10.31579/2690-8808/155](https://doi.org/10.31579/2690-8808/155)

Ready to submit your research? Choose Auctores and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more <https://auctoresonline.org/journals/journal-of-clinical-case-reports-and-studies>